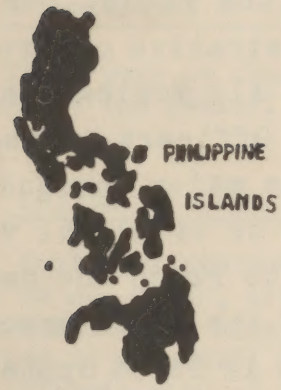
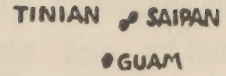




CIRCULAR NUMBER 9

MEDICAL SECTION

GHQ FEC

1 SEP 1947

Articles for Publication in Circular

It is desired that the Monthly Circular Letter published by the Medical Section GHQ, FEC be of maximum value to all of the Medical Department personnel in the field. To that end, articles of professional or administrative nature that might be of general interest are needed. All Medical Department officers as well as the Commanding Officers of Medical Department units and the Surgeons of the major commands are solicited for articles of administrative or technical value. Such articles should be forwarded so as to reach the Medical Section, FEC, not later than the 20th of the month preceding the publication of the circular in which it is to appear.

GENERAL HEADQUARTERS
FAR EAST COMMAND
MEDICAL SECTION

CIRCULAR LETTER)
:
NO. . . . . 9)

APO 500
1 September 1947

Part I

SUBJECT — ADMINISTRATIVE — SECTION

I. Organization of the Medical Section

There were no changes in commissioned personnel currently assigned or attached to the Medical Section during the period covered by this publication.

II. Initial Distribution of Medical Films

Initial distribution of the sound film strip, Smallpox Vaccination (FS 8-106 35 mm, Color, with accompanying records), and the 16 mm film Arthropod-Borne Virus Encephalitis (PMF 5046, Formerly Misc. 1325, Color, Running Time 34 Minutes), is being made to installations in the Far East Command. Distribution of these films is made in accordance with recommendations from the Office of the Surgeon General for showings to interested medical personnel.

III. Safeguards for Handling Toxic Insecticides and Rodenticides

Containers equipped with locks are necessary for safeguarding, transporting, and storing of toxic insecticides, rodenticides and fumigants. All precautions should be utilized to minimize handling hazards in the storing and conveying of such chemicals as sodium monofluoroacetate, alpha naphthyl thiourea, thallium sulphate, zinc phosphide, hydrocyanic acid or HCN discoids, methyl bromide, lead arsenate or other arsenicals, and toxic organic and inorganic insecticides. The policy for safe storage of large quantities of methyl bromide, rodenticide fumigant dust, rodenticide fumigation control, and rodenticide plague control are set forth in Appendix V, Technical Manual 10-250, 1 March 1946. The procedures on safeguards for handling insecticides

and rodenticides are published in War Department Circular 184, 15 July 1947.

IV. Unsatisfactory Intravenous Solutions

The following medical department items should be examined to determine those stocks which bear a date of manufacture or were procured prior to 1 January 1944:

1164600 Dextrose, 5% in sterile distilled water, 1000 cc

1165000 Dextrose, 5% in physiological sodium chloride solution, 1000 cc

1429500 Sodium chloride isotonic solution, 1000 cc

The Surgeon General has determined those stocks to be unsafe for medicinal purposes and destruction is authorized under the provisions of paragraph 111 c, TM 14-904. However, if containers can be disposed of economically through salvage, the contents only should be destroyed.

V. Army Medical Center

What is planned to be the greatest medical research center in the world will be built at Forest Glen, Maryland. In keeping with technological advances in all fields, based on experiences in the late war, the center will be equipped to anticipate and meet the medical problems of the future as well as to cope with those of the present.

Officially designed as the "Army Medical Research and Graduate Teaching Center," the project will consist of a 1,000-bed general hospital, capable of expansion to 1,500 beds; the Army Institute of Pathology building; the Army Medical Museum and Center Administrative building; Central Laboratory Group buildings; and the Army Institute of Medicine and Surgery. A working library, animal farm, quarters for the staff and other buildings are included in the plans.

Located just outside of Washington the new Army Medical Center will have the advantage of close relationship to the Walter Reed General Hospital, the Naval Medical Center, the medical schools of the District and the proposed new Washington Medical Center, with all of whom ideas can be interchanged. In addition, members of the District of Columbia Medical Society, among them some of the finest specialists in the world, and medical experts from other Government departments, will be available for consultation. The Center will also cooperate with the National Bureau of Standards, the National Institute of Health and the National Research Council.

Plans for the 1,000-bed hospital buildings, as announced by the Army Engineers, provide that 200 beds shall be specifically designed

as research beds and that these be so located as to be physically accessible to research activities of the various institutes and central laboratories. However, they will remain an integral part of the hospital for service and patient care. In the proposed future expansion, a proportionate number of beds will be reserved for research and these will be located in the same area as the original 200, with the same accessibility to other buildings. Any expansion would be horizontal rather than vertical, making this arrangement possible.

Arrangement and equipment of the hospital will embody the most modern criteria developed as a result of war experiences. As a part of the Army's chief medical center, the hospital will have access to all ideas for new equipment which will be adopted as fast as it is tested and developed. In addition to regular hospital facilities, the plans call for a gymnasium, bowling alleys, swimming pool, auditorium and conference room, post exchange, barber shop, snack and beverage bar, post office, library, bank, game rooms and tailor shop. These would be included in, or directly connected with the hospital building and would be accessible to patients and post personnel.

The estimated total floor space for the initial building is 650,000 square feet, and this includes the additional features listed above. When the hospital is expanded to 1,500 beds, it is estimated that it will require 825,000 spuare feet of floor space.

The Institute of Pathology building will house the Department of Pathology, the American Registry of Pathology, and the Army Medical Illustration Service. Extensive facilities for experimental research and training in pathology and necessary facilities for the prosecution of the work of the departments will be provided. Possible future expansion will be kept in mind in planning this building.

The building will be connected with the Army Medical Museum in order to facilitate traffic between the two buildings, due to the fact that a large portion of museum exhibits will be furnished and maintained by the Institute of Pathology. All floors of this building will also be connected with the Central Laboratory Group because initial laboratory facilities to be provided will be used by the Institute of Pathology, although in the ultimate development of the center, all research activities of the various groups will be correlated and the expanded Central Laboratory Group will serve research and teaching activities of all the institutes. The research beds of the hospital building also are to be accessible to the Department of Pathology in this building, the estimated floor space of which is 120,000 square feet.

The Central Administration Building will provide facilities for the administration of the entire center and will house the Army Medical Museum, the main auditorium of the center, the research library for staff and students in training, and certain graduate teaching facilities which will be used by all institutes. It will also be the focal point of all activities which will bring the lay public to the center on business in which it may have a scientific interest. Since public admission to some of the buildings and the Central

Laboratory Group is not desirable, the use of this building as the public center would make control of lay personnel comparatively easy. This would not include admission of the public to the Hospital Building which would be an independent problem.

Also, certain areas of the museum would be limited to staff and students for research and teaching, although the larger part of the exhibit space of the museum would be open to the public. The research library would be limited to staff and students in research and teaching.

The main auditorium will be used for large staff meetings, meetings of personnel for lectures and large public assemblies. It will be equipped with the latest in motion picture projectors in order to illustrate the lectures given.

The estimated total floor area is 110,000 square feet.

The Central Laboratory Group will consist primarily of basic science laboratories serving the entire center. These will be constructed as to the need for them grows, the first being devoted to the service of the Institute of Pathology. As other institute buildings are constructed, the scope of existing laboratories will be broadened and additional facilities added as required.

The estimated total floor area in this group of buildings is approximately 113,000 square feet.

The Institute of Medicine and Surgery Building will house the following departments: Research Medicine, Research Dentistry, Veterinary Medicine, Research Surgery, X-Ray and Radiation and Preventive Medicine.

Ample laboratory, administrative and storage facilities will be provided for these various departments for their work in experimental research and teaching. The building will be connected with the Central Laboratory Group because certain phases of research projects carried on by this institute will be pursued in the Laboratory Group which serves all institutes. The research beds of the hospital will also be readily accessible to the various departments of this institute.

The estimated total floor area in this building is 140,000 square feet.

The Center will serve to bring together many important units now scattered in various parts of the United States. The Medical Nutrition Laboratory now located in the Quartermaster Depot at Chicago, will be brought here. This institute, it is explained, now deals almost entirely with normal diets. It is proposed, however, to study

the needs of wounded men, some of whom lose twenty or thirty body pounds in a short period of hospitalization, and see if something can be done to remedy this loss.

The Medical Field Research Laboratory is now located at Fort Knox, Kentucky. This is a physiological laboratory which handles what might be termed "human engineering". Its function is to find out what man can stand in the way of cold, heat, fatigue and sudden change, and what effect it has upon him. Ways of remedying any ill effects are also studied.

The Surgical Research Unit, now located at Fort Sam Houston, Texas is devoted largely to traumatic surgery, studying the type of injury received in time of war and proper methods of treating it. It is pointed out that the man wounded in battle has to wait at times for as much as twelve hours or more before being hospitalized, whereas the civilian is generally in a hospital within an hour. These differing conditions call for different methods of treatment and must be carefully studied if such treatment is to be successful.

VI. Mattress Evacuation Sling

Emergency removal of bed-ridden patients, including orthopedic and post operative cases, can be accomplished safely and quickly with the use of the mattress evacuation sling. The device consists of a webbed sling reinforced with steel inserts, fitted with metal handles and designed to be placed between the mattress and spring of army hospital beds. Two attendants will be required in the use of the sling to remove the mattress and patient from the bed: The plan involved is a turn, pulling slide motion, and then followed by the lowering of patient and mattress to the floor. One nurse using the sling as a slide can pull mattress and patient along the surface of the floor or ground.

The sling is an engineer item for supply and the standard nomenclature is Sling, Mattress, Evacuation, Stock No. 57-7980.500. 500.

Mattress evacuation slings should be used on the beds of all non-ambulant orthopedic cases, particularly those in suspension traction, to expedite successful evacuation during emergencies.

VII. Integration of Officers in the Regular Army

In accordance with the recent extension of the closing dates of the Nurse and Women's Medical Specialist Corps screening centers, the War Department authorizes officers of the Medical Corps, Dental Corps, and Medical Administration Corps or Sanitary Corps, with MOS and SSN prescribed as follows, to make application for Regular Army commission until 15 September 1947: Bacteriologist 3307, Biochemist 3309, Parasitologist 3310, Serologist 3311, Clinical

Laboratory Officer 3314, Etomologist 3315, Nutrition Officer 3316, Toxicologist 7316, Industrial Hygienist 7430, Sanitary Engineer 7960, Clinical Psychologist 2253, and Psychiatric Social Worker 3605. Overseas commanders should process such applications at screening centers established for them under the provisions of War Department Circular 113, dated 3 May 1947.

VIII. Army-Navy Catalog of Medical Materiel

The following letter received from the Office of the Surgeon General on 25 August 1947, is published for your information:

"On 1 October 1947, War Department Catalogs MED 3 and MED 6, March 1944, will be superseded by the Army-Navy Catalog of Medicine Materiel and the Component Parts Supplement, dated July 1947, through publication of Section II, War Department Circular Number 203, dated 1 August 1947. The new catalog has been prepared jointly by the Army and the Navy, and will be used by both departments. In the near future, it will be distributed automatically to the Army by Adjutant General depots; however, it will not be used for requisitioning purposes prior to 1 October 1947. It is extremely important, upon receipt, that all interested personnel be instructed in this matter.

Prior to 1 October 1947, all possible preliminary steps should be taken toward remarking stock, preparing or correcting stock records and other stock accounting documents, in order that the new catalog can be placed in use without interruption or confusion on the specified date.

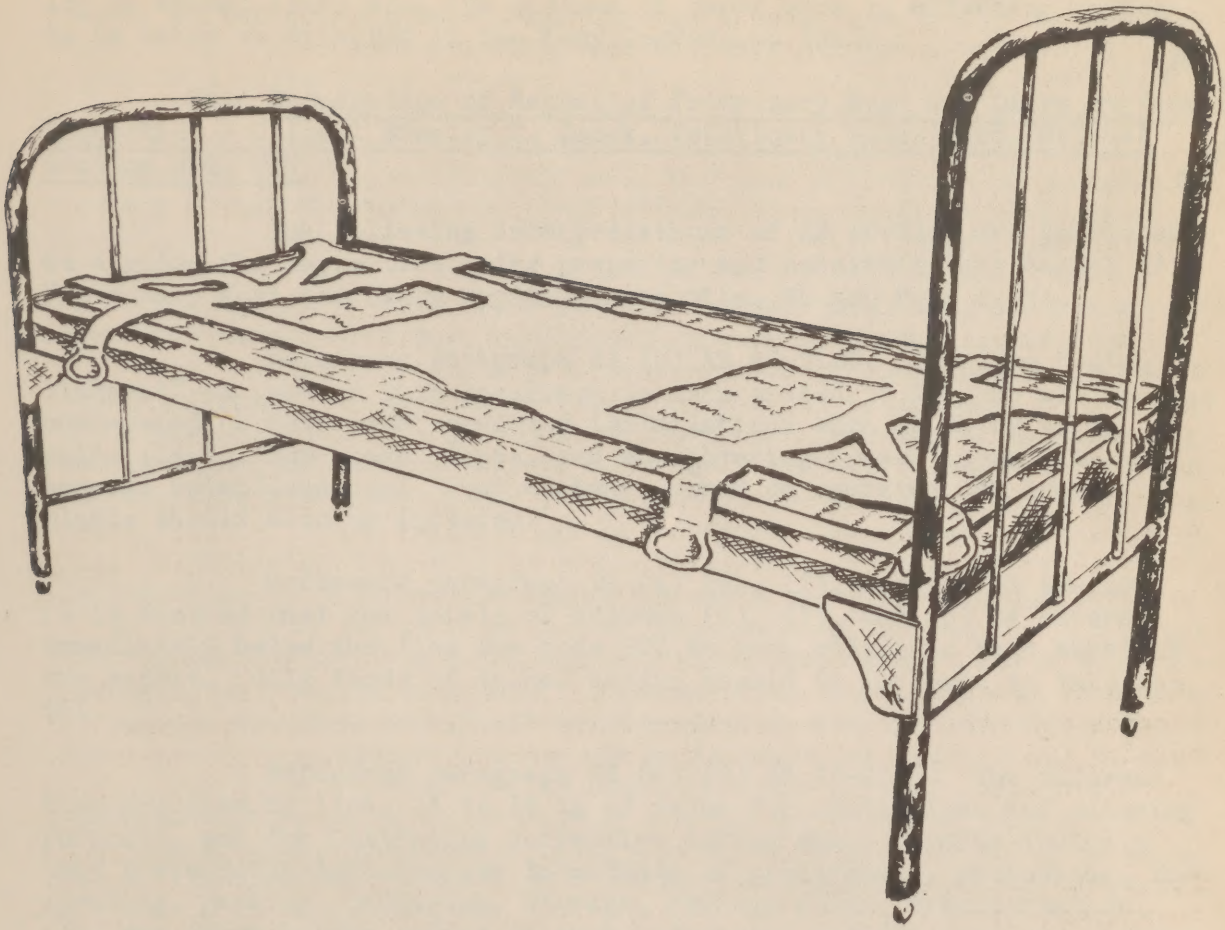
The Army Conversion Table in the new catalog should be carefully studied by all concerned prior to making changes on records or remarking stocks since it is the key for the shift-over from the War Department Catalog MED 3 to the new Army-Navy Catalog of Medical Materiel.

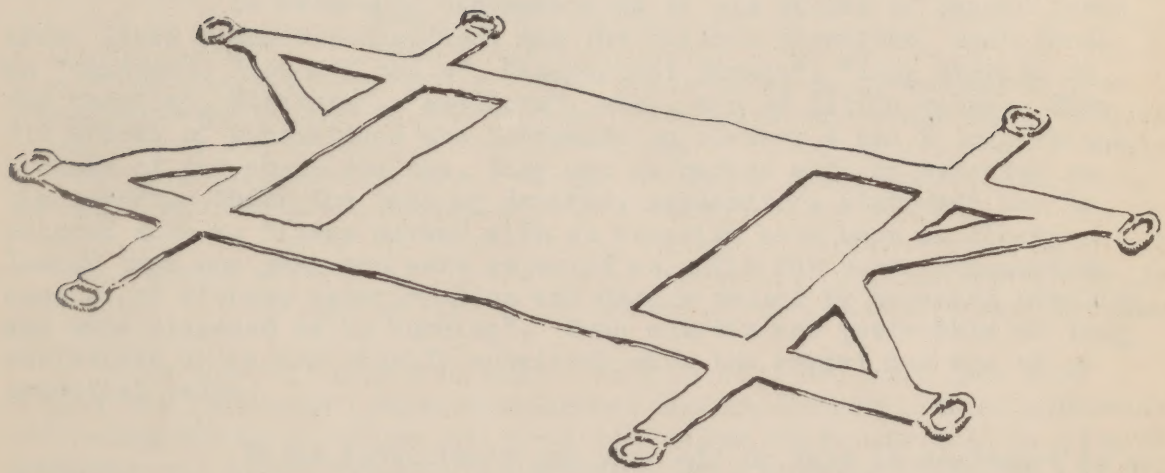
It will be noted that there are three distinct types of items listed in the new catalog, i.e., JAN (Joint Army-Navy), Army only, and Navy only. The Navy only items will not be requisitioned by Army stations.

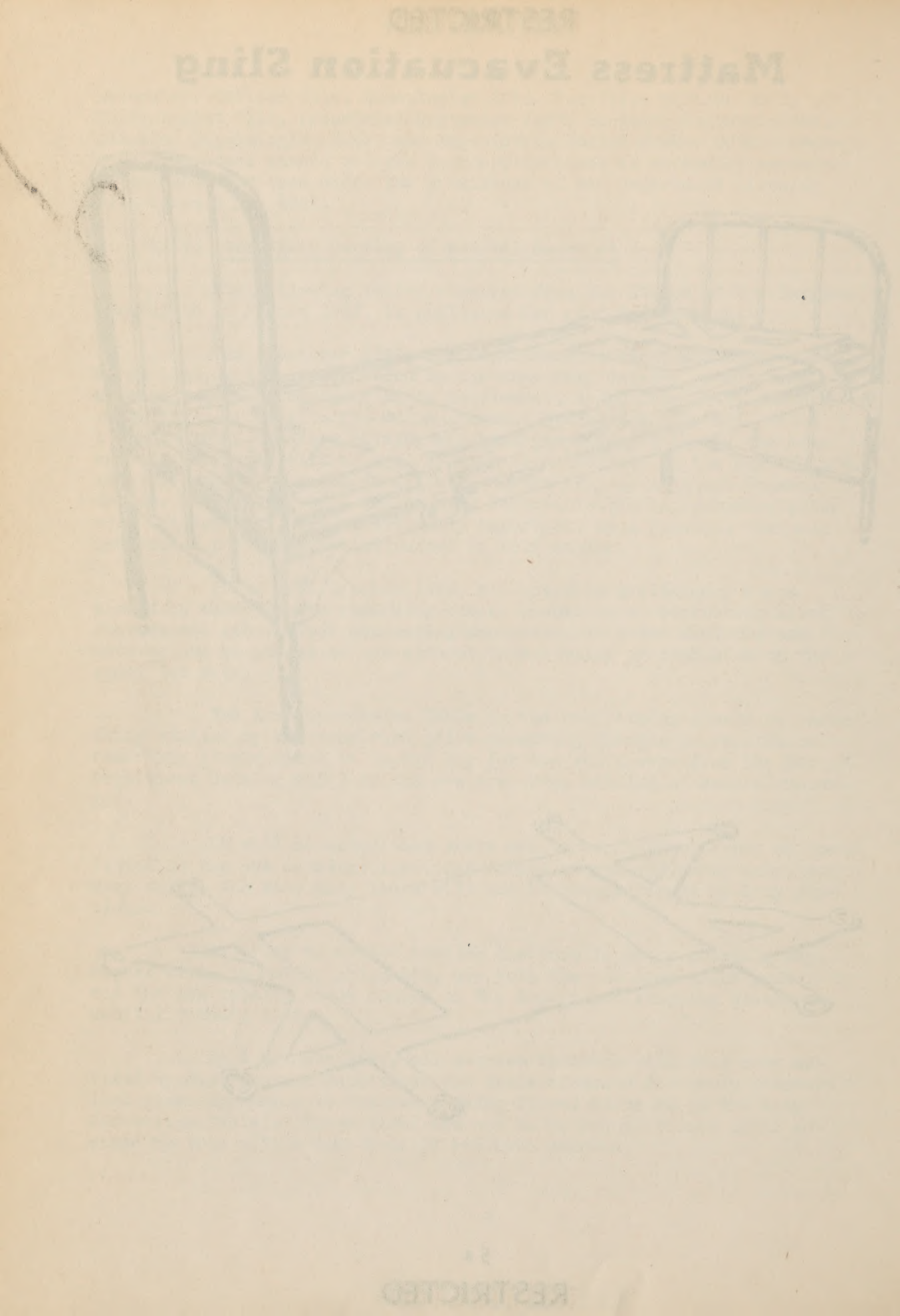
In order to assist oversea theaters in every possible way, depots will, in making shipments, use both the old Army stock number and the new catalog stock number on War Department shipping documents, until 1 January 1948.

By 1 October 1947, all oversea theaters will have been advised by distribution depots, of the basis of issue for newly standardized items appearing in the new catalog (Coded A1 or A2 in the Army Conversion Table). These items are not to be requisitioned until advised by this office that Code 17 has been removed.

Mattress Evacuation Sling







It is considered desirable that the change-over to the new catalog be accomplished with the minimum of paper work in effecting action to be taken as directed in the Army Conversion Table.

IX. Preparation of Report of Veterinary Meat and Dairy Hygiene Inspection - Colonel Stanley C. Smock, Veterinary Consultant, Medical Section GHQ, FEC

The following interpretations of AR 40-2150 are published as a guide for inspection units preparing and submitting the Report of Veterinary Meat and Dairy Hygiene Inspection, WD AGO Form 8-134.

Reference paragraph 21 (b) AR 40-2150. The term "establishment" as used in this paragraph is interpreted to include all Government-owned or Government-operated installations such as dairy farms, dairy plants, ice cream plants, and slaughtering houses as well as commercial establishments. Post exchange owned or operated ice cream plants should also be included.

Reference paragraph 22 (a) (6), (7), and (8) AR 40-2150. It is desired that the totals of columns (6), (7), and (8) be entered immediately below the line for code 907 in each column on each sheet of the report. Only foods of animal origin should be included in this total.

Reference paragraph 22 (a) (9) AR 40-2150. The information required by lines 13 to 18 is of value for statistical and planning purposes, and for initiating corrective action where reports indicate that preventable deficiencies in methods of procurement, processing, inspecting, packing, packaging, storage, refrigeration, transportation, etc. are contributing causes to such rejections and the resultant losses.

In reporting condemnations of old stocks of canned foods under Class 7 and 9 inspections and the reasons therefore, such terms as "unknown", "not available", "mechanical damage", "long storage in the tropics", "leakers", "swellers", etc., are of little value. When old stocks of subsistence are condemned on classes 7 and 9 inspections because of the above reasons, they can be marked with an asterisk on the report. Under the heading Remarks, explanatory statement may be entered such as "Items marked with an asterisk have been in storage longer than one year and were rejected as unfit for human consumption because of storage deterioration and damage caused by repeated handling and were disposed of by burning". Such entries are preferable to long enclosures which are usually submitted with the report and are of no practical value.

Where subsistence one year old or less is condemned as a result of any of the above conditions or other correctable deficiencies, complete information should be supplied as to when, where and how, and should further indicate whether the problem is a local one or not so that corrective action can be taken.

Reference paragraph 22 (g) AR 40-2150. The inspection of ice cream during manufacture by or for a Post Exchange should be reported on the Class 8 sheet and the appropriate entry, such as "Inspection incident to manufacture" entered in column (9). It is suggested that this policy be followed even though the Post Exchange obtains the ice cream mix or other ingredients from the Quartermaster.

Reference paragraph 22 (h) AR 40-2150. A statement as to the necessity for the storage inspection as described in lines 2 and 3 should be entered in Column (9), but only when the purpose of such inspection is other than a routine check made to determine the condition of commodities in storage.

Class 9 inspections are made in compliance with paragraph 17 a, (7), AR 40-2150. The inspections are held at such intervals as are necessary in considering the nature, age, ordinary keeping qualities of the items in question, existing storage conditions, and to insure that the responsible veterinary officer is fully aware of the condition of the entire lots in question. The amount to be examined in each instance must be sufficiently representative of the lot to ascertain with reasonable accuracy the general condition of the entire lot.

The inspection of ice cream and reconstituted milk during manufacture by or for the Quartermaster should be reported on Class 9 inspection sheet. Where such items are manufactured from Government-owned products, an appropriate entry such as "Inspection Incident to Manufacture" should also be made in column (9). The inspection made at the time of issue should be reported on the class 7 sheet.

Reference paragraph 22 (i) and paragraph 21 (b) AR 40-2150. The names of establishments entered in Section B, Sanitary Conditions, should be tabulated alphabetically.

It is desired that the report be assembled with the sheets according to class and in numerical order. The assembled report should be numbered consecutively at the bottom of each sheet.

Reference paragraph 23 (a) AR 40-2150. The report should be signed by the senior veterinary officer present or the officer responsible for the inspection. If the veterinary officer is not available for signature the report should be signed by the Surgeon, with an explanatory remark in space (14). If a veterinary officer is not assigned but veterinary enlisted personnel are assigned the report should be signed by the Surgeon. If no personnel of the Veterinary Service are regularly assigned the report should not be submitted.

Note that Form 8-134 is a basic communication which should be forwarded by indorsement through Medical channels. Normally, the veterinary officer who signs the report prepares the first indorsement for his Surgeon's signature and presents it with the report for approval and forwarding.

When a lot of subsistence is found to have deteriorated below Army standards and a veterinary officer recommends disposition by sale or transfer to another agency, the entire amount should be inspected at time of disposal and reported on Class 7 sheet in column (6). Any part which is certified as unfit for human consumption should be entered in column (8). Appropriate remarks explaining the transaction should be entered in column (9) or under Remarks.

When a veterinary officer is required by local authority to inspect foods of other than animal origin, such of the following entries as may be applicable should be entered in column (5) following Code 010: fresh fruits and vegetables; frozen fruits and vegetables; canned or dried fruits and vegetables; cereals and cereal products. The amounts inspected and passed or rejected should be entered in column (6), (7), or (8).

X. Recent War Department and FEC Publications

AR 35-6660, C-4, 21 July 1947, Par 39, Accounting for Field Rations Issued.

AR 40-10, C-4, 23 July 1947, The Medical Corps - General Provisions.

AR 40-405, C-1, 3 July 1947, Army Medical Library.

AR 40-2090, C-3, 11 June 1947, Communicable Disease of Animals.

AR 345-415, C-3, 14 July 1947, Military Records, Daily Sick Reports.

AR 600-550, 23 June 1947, Personnel-Deceased.

Circular 174, War Department, 3 July 1947, Section III, Ration; (Section VI, War Department Circular 182, 46, rescinded).

Circular 178, War Department, 9 July 1947, Section IV, Rates Applicable During Fiscal Year 1948 to Patients who are Treated in Army Medical Facilities Inside and Outside Continental Limits of U. S.

Circular 179, War Department, 10 July 1947, Section II, Homosexuals - (War Department Policy).

Circular 183, War Department, 12 July 1947, Section IV, Organized Reserve Corps, Except General Officers (War Department Circular 356, 46, amended).

Circular 184, War Department, 15 July 1947, Section II, Insect and Rodent Control.

Circular 189, War Department, 22 July 1947, Section II, Army Nurse Corps Reserve and Women's Medical Specialist Corps Reserve; Section IV, Private Mounts. Section VI. Rescissions.

Circular 191, War Department, 23 July 1947, Section IV, Medical Department Officer - Assigned to Veterans Administration for Duty.

Circular 195, War Department, 25 July 1947, Section I, Appointment of Female Officers to ANC and Women's Medical Specialist Corps, MD, RA. Section V, Training in Basic Medical Subjects.

Circular 203, War Department, 1 August 1947, Section II, Army-Navy Catalog of Medical Materiel.

Circular 204, War Department, 2 August 1947, Section I, Courses at Civilian Institutions in Medical Specialties.

Circular 205, War Department, 5 August 1947, Section V, Par 1 i, Patients not Scheduled to Return to Duty; Section VI, Rescission of War Department Letter, Subj: Immunization of Dependents.

Training Circular 3, War Department, 17 July 1947, Section II, Venereal Disease Control.

Technical Bulletin, TB MED 226, War Department, 28 June 1947, Veterinary Food Inspection Procedure.

Technical Bulletin, TB MED 227, War Department, 28 June 1947, Surgical Treatment of Hernia.

General Order 59, War Department, 27 June 1947, Section IV, Medical Technical Maintenance Division of Army-Navy Medical Procurement Office.

General Order 63, War Department, 11 July 1947, Section II, Base Optical Shops.

Table of Allowances, 10-3-8, 24 June 1947, Central Identification Unit, American Graves Registration Service.

Curcular 75, GHQ, FEC, 27 June 1947, Theater Safety Program - (Instructions for Preparing Report of Injury).

Circular 80, GHQ, FEC, 30 July 1947, Section I, Insect and Rodent Control, Section II, Assignment of Hospital Patients.

Circular 82, GHQ, FEC, 5 August 1947, Section II, Medical Department Foreign Quarantine, (Correction in FEC Circular 79, 1947).

Circular 84, GHQ, FEC, 8 August 1947, Narcotics.

Part II

XI. Army Reports on Use of Streptomycin

The new anti-infection agent, streptomycin, which is in the same general class as penicillin, appears effective in appropriate doses against more than half the infective bacterial organisms ordinarily encountered by surgeons, according to the report from the Halloran General Hospital. Clinical studies of the use of the drug throughout the army have been submitted and evaluated at Halloran.

On the other hand, it apparently has specific poisonous effects when given over an extended period, and bacteria soon becomes resistant to it so that it probably can be used only once with maximum effect within a limited period on the same patient.

The observation of the ability of bacteria to develop resistance to the drug after a few days may be of particular importance at this time. The same has been noted in respect to both the sulfa drugs and penicillin, but apparently the phenomenon is more pronounced with streptomycin. In at least one case, the test tube experiments showed there was a 100-fold increase of the resistance of an organism in ten days. Given indiscriminately, the drug may lose any value for a particular type of infection in an individual for the rest of his life. Improper use may cause variation and selection in disease agents so that streptomycin is no longer effective for the infection where it is of greatest value at the present time.

Bacteria on the basis of certain chemical reactions, ordinarily are divided into two classes - gram positive and gram negative. The new drug, in test tube experiments, seems effective in varying concentrations, against 60 per cent gram positive and 80 per cent gram negative organisms ordinarily encountered in surgery.

Of paramount importance is determination whether a specific micro-organism is susceptible to the drug before it is administered by mouth, by injection, or direct application.

The Army experience bears out previous claims that streptomycin is of especial value in clearing up infections of the urinary

tract, provided that the organisms causing the infections are susceptible ones. If the treatment is not entirely effective in three days ordinarily, no good results can be expected from its continuation. In gonorrheal infection which has proved resistance to both sulfadiazine and penicillin, outstanding results have been obtained.

Use in Army hospitals gives no support to claims that the drug is of value in infections of the prostate. The drug is not concentrated in that organ.

It was found to have very little value against bone infections, except when used in conjunction with surgery where there could be direct application.

Thus far streptomycin has not given dramatic results in peritonitis, but its continued use as an auxiliary treatment seems justified.

In various dysenteries due to susceptible bacteria, considerable benefit has been noted, sometimes when the drug is given by mouth alone.

In septicemia -- still provided that the organism responsible for the infection is a susceptible one -- streptomycin has proved very effective, but it still is essential that unapproachable foci of infection be removed by surgery.

The substance has little value, so far as the Army experience goes, against typhoid fever and it is apparently of no use in controlling carriers of this disease.

In undulant fever there have been apparent clinical arrests of the infection from the combined use of streptomycin and sulfadiazine after each drug given alone had failed. Further study will be required, however, before any valid conclusions can be reported.

It is very effective against tuleremia, or rabbit fever, provided the specific organism responsible has been demonstrated in test tube experiments to be susceptible to the drug.

Up to date experience with only a few cases of meningitis have been reported and the results, in conjunction with other treatments, have been quite good. The Army doctors found, however, that it must be given by injection into the space between the thick membranes surrounding the brain and spinal cord and the brain or spinal cord tissue. Circulating in the blood stream it cannot pass this barrier to reach the infecting organisms.

Excellent results have been obtained with direct application of the drug to infections of the external ear, the pleural cavities and the brain. Infections elsewhere will not reach local foci of infection in sufficient concentration to be effective.

One of the hopes of the medical profession has been that streptomycin would prove of some value against tuberculosis. The Army experience neither confirms nor refutes this since a much longer series of investigations will be required before there can be any valid conclusions.

Balances against the demonstrated value of streptomycin in suitable cases are some apparently toxic effects. Some of these are probably due to impurities in the drug but others seem to be specific for the drug itself. The most serious of these is what seems to be an irreversible damage to part of the eighth cranial nerve which appears when streptomycin is given in large doses by injection for more than ten days. This means that one's sense of balance may be distured for a long time with possible attacks of dizziness and nausea. This was found in two Army cases. A third patient showed partial deafness, indicating that there had been a poisonous effect on the other portion of the eighth cranial nerve which is the path of hearing. Toxic effects also were noted on the kidneys. All this demonstrated that the drug should be given only by physicians and then only after careful consideration of the organisms involved and the safe dosage.

XII. Salient Points in Report of Atomic Bomb Casualty Commission

A number of interesting facts relating to the Japanese who survived at Hiroshima and Nagasaki were disclosed in the report of the Atomic Bomb Casualty Commission. Based upon a study which was relatively short - about six weeks - the report gives a picture of work which is under way to evaluate the results upon human beings of a massive dosage of radiation, in combination with the heat and concussion generated at nuclear fission.

The commission, whose task is completed with presentation of the report, was composed of two civilian physicians, two Army medical officers and one Navy medical officer. They were Drs. Austin M. Brues and Paul S. Henshaw, Lieutenants Melvin A. Block and James V. Neel, (MC), U. S. Army, ad Lieutenant (jg) Frederick W. Ulrich (MC) USNR.

Their investigation was launched in Japan late in November of 1945 and concluded early in January of 1946.

Following are some highlights of the commission's report which was reviewed and cleared by the Atomic Energy Commission prior to issuance:

"Members of the commission have been impressed during their observation of atomic bomb survivors by the fact that many of the burns have healed with accumulations of large amounts of elevated scar tissue, the so-called keloids."

"The striking feature noted in the large number of burns that have healed with excessive quantities of scar tissue, having a relatively

flat surface elevated above that of surrounding skin. Margins of these lesions are sharply defined. The area involved varies very much, some being as small as one centimeter in diameter while others may involve most of the face or the back. The maximum growth of such tissue evidently was reached about eight or ten months following the injury . . . . These are the so-called keloids."

"The assay of possible genetic effects is much more readily performed in plant and animal material than in man, with however, the important qualification that in man and to a lesser extent plant material, it is often impossible to be certain of position at the time of the bombing. The Japanese efforts to utilize animal material have been completely nullified by the chaotic conditions and poor food situation."

"Experiments with Drosophila fruit flies also had to be abandoned for lack of facilities and adequate testor stocks. With respect to plant material studies, the Japanese made certain observations purporting to show that vegetables grown in Nagasaki from seed from plants that were well beyond the known radius of bomb effects tended to assume unusual forms when grown near the ground center of the explosion. Dr. Takeo Furuno, noted horticulturist, maintained two experimental garden plots, one 150 meters and the other 500 meters from the hypercenter. Abnormal vegetative forms of Brassica chinensis, Lappa edulis, Cucurbita moschta, Solanum melongena and other species were reported to be far more frequent in the plot nearest the hypocenter, attributable to some effect of the atomic bombing on the soil."

"These two plots were inspected" says the Brues-Henshaw report, "and specimens of the vegetables examined". It was the opinion that soil differences complicate the picture of an extent where it is impossible to reach conclusions.

During the months of October and November, 1945, a study was conducted on 124 male inhabitants of Hiroshima. Examinations disclosed that in 43 cases the number of spermatocytes in the ejaculated sperm was less than 5,000 per cubic millimeter, or "absolutely sterile" in the words of Prof. Tsuzuki. Ten other cases were "relatively sterile" and the remaining 71 were normal.

"A reformation of the spermatocytes occurs in one month, so the recovery of damage to spermatocyte formation will be delayed more than that of the damage of white blood cells. The shorter the distance, the more severe was the damage. The damaging influence on the number of spermatocytes was observed in the area within a radius of three kilometers (about two miles) from the ground center. Within a radius of 2.5 kilometers there appeared some sterile cases. Within a radius of 1.5 kilometers one-half of the cases showed sterility."

Women who were in an early stage of pregnancy "have taken a normal course since the bombing" said Dr. Tsuzuki.

"It is already experimentally proved both in botany and zoology that there is a possibility of producing a malformation of descendants when the sexual cells are affected in some degree by radioactive energy. The question, if this fact is applicable to the human beings or not, will be made clear by further observations."

"We have already clear evidence that the human sexual cells are also affected by the atomic bomb injuries. There is a possibility of malformation of the descendants if the sexual cells should be affected selectively, without any severe damage to the other organs or tissues."

"In the survey of spermatocytes, it was noticed that they decreased not only in their number but they showed also some structural abnormalities. This problem must be, therefore, taken up and carefully followed further."

Heretofore, conflicting figures have been presented on the number and character of casualties at Hiroshima and Nagasaki. Dr. Tsuzuki quotes the Hiroshima prefecture as estimating: 19 days after the explosion, the dead at 46,185; the missing at 17,429; the severely injured at 19,691; slightly injured at 44,979, and other sufferers at 235,656. Six months after the catastrophe, the toll of dead and missing stood at 92,133, excluding the military dead. The total number of Hiroshima dead may be set at 100,000 according to the Japanese professor. The Nagasaki prefecture set the city's toll at 23,753 dead, 1,924 missing, 23,345 wounded and 89,025 other sufferers.

"Comparing the death rates of males and females, we find that they are almost equal outside a radius of 1.5 kilometers from the ground center, but the rate of females within a radius of 1 kilometer seems to be lower than that of the males. While we were staying at Hiroshima, we often heard that under the same conditions, men died more quickly, women were more resistant. We could not believe such a story at that time."

"But the statistics showed a result that in the central area, the female mortality seemed to be a little lower than the male. The reason for this fact is, of course, unknown. The central area, within a radius of 1 kilometer, was the place in which a tremendous number of neutrons reacted. We may be allowed to imagine that a difference of distribution of the atomic energies would cause the difference in the death rates between males and females."

The Commission's view that much valuable information can be obtained from a long-term study of atomic bomb casualites has been strengthened. . . . From previous irradiation experiences with both animals and human beings, there is good reason to believe that reproductive disturbances, malignancies of one form or another, shortened life span, altered genetic pattern, etc. will in time appear in greater or lesser degrees.

"The problem is one of detecting the changes and recording the events as they occur. It is the view of the Commission, furthermore, that with the possible exception of genetic recessives (physical monstrosities which might not crop out for several generations), the various changes can be successfully detected and recorded. This presupposes of course, the proper cooperation with the Japanese and a reasonable expenditure of funds."

XIII. Resume of "Newer Concepts of Control of Respiratory Diseases" by Dr. Colin MacLeod, New York University College of Medicine.

Substantial advances toward control of the respiratory diseases -- colds, influenza and pneumonia -- now may be close at hand, due largely to facts developed from large scale Army experience during the war.

The indications are that these maladies can be substantially reduced through a combination of immunization with antigens already available and a lessening of sources of infections.

This whole group, however, still presents puzzling problems for which medical science gradually is finding answers. It is a curious fact that certain virus diseases--the group to which colds and influenza belong--never occur more than once in the same individual. That is, one attack usually confers permanent immunity. Such maladies are chickenpox, mumps, measles and smallpox. But apparently only short period immunity at the best is conferred by antigens against the respiratory diseases.

The outstanding difference is in the incubation period. The group against which permanent immunity is obtained has incubation periods ranging from 7 to 26 days. The periods for colds andinfluenza are from one to three days. This brings into the picture the so-called "namestic" or secondary response. The purpose of an antigen is to bring about the production of antibodies to the disease by the body itself. Certain cells apparently are detailed for this work. An antigen rouses them to action but this requires from seven to ten days.

Thencefore, however, these cells remain on the alert. The response to a second and very much smaller dose of the antigen will be much greater and much quicker--generally in from three to six days.

Germs of the disease invading the system act precisely as "a booster shot" of the antigen. The cells which manufacture antibodies come into action at once. But in the case of the respiratory diseases with their very short incubation periods even the much faster reaction is not fast enough. The malady can become established before it can get under way.

Thus apparently there is little hope of immunizing a population against colds or influenza by "shots in the arm." It would be an unimaginably big job to keep everybody adequately immunized by repeated antigen injections all the time.

The other side of the picture, however, that every one who has been immunized reduces by that much the amount of the infective organism in circulation. Whether one contracts a disease after partial immunization depends largely on the number of germs encountered.

It has been shown recently, for example, that the point of attack of the influenza virus is the mucous membrane of mouth and nose. When one has been immunized, a small amount of the antibodies thus produced find their way to this membrane and attack the germ at its point of entrance. However, this is only from a tenth to a twentieth as much as is circulating in the blood stream at the same time. To prevent influenza, other than by constant and frequent vaccinations, it is essential that the amounts of the germs finding their way to the respiratory passages be insufficient to overwhelm the minute quantities of antibody present. Thus, to insure any sort of protection, the sources of infection must be kept at a low level. One is more likely to catch influenza in an office where everybody else has a severe case than in an office where only one man has a mild case. Thus, every immune person serves as a wall against the spread of the disease.

This has been demonstrated in an extensive army experiment with pneumonia--a bacterial rather than a virus disease, but which apparently follows about the same laws so far as immunity is concerned.

XIV. Report of Epidemic Amebiasis Among Occupants of a Specific Area in Tokyo, December 1946 to June 1947 Captain Cooper Davis, 385th Medical General Dispensary, GHQ, FEC

Epidemic amebiasis among easily identified population groups has been only occasionally reported. The current literature has numerous reports of the incidence of amebiasis among Allied personnel stationed over wide areas. But the epidemiological thread is too often lost in these more or less transient groups. Circumstances in which a known group is exposed to a known massive infestation of E. histolytica, recognized early, treated and followed for six months or more are relatively infrequent.

This report is based on observations made during a number of cases of amebiasis diagnosed in January and February 1947, limited to a single area in which there were approximately 175 Americans (officers and their families) and approximately 300 Japanese servants.

Incidence:

The average incidence of amebiasis among the Japanese is probably about the same as that in the United States. Japanese statistics before the war may not have been reliable. During the period January 1946 to June 1947, several thousand stool examinations of Japanese nationals in the Tokyo-Yokohama area by Allied personnel revealed E. histolytica in only 6-8 per cent of the specimens, a surprising finding in view of the lack of modern plumbing facilities in Japan, as well

the extensive practice of using human feces as fertilizer.

It is anticipated that the average incidence of amebiasis among American occupation personnel stationed in Japan will be between 6-10 per cent, although what percentage of these will represent infestations acquired in Japan or previously acquired in the United States or elsewhere presents an extremely difficult problem.

Epidemic infestation with E. histolytica involving a relatively large group of Americans has to date occurred in only one instance in occupied Japan. The area in question, had been extensively damaged by bombing; after being repaired by Army engineers, it has been occupied, since 1 December 1946, by American families (175 individuals). Between 15 December 1946 and 15 January 1947, approximately 20 per cent of these occupants presented themselves at various Army dispensaries throughout the Tokyo area complaining of mild diarrhea (usually 2-6 loose stools per day), and/or mild colicky pains in the lower abdomen; occasional nausea, vomiting, headache with slight fever were noted. These early cases were evidently regarded as "mild gastrointestinal upsets" and treated with bismuth and paregoric. Initial stool examinations 23 January 1947 of 16 American occupants of the area revealed that 15 of the 16 had one or more intestinal protozoa, 7 of the patients being infected with E. histolytica. Two medical officers were assigned to the area; all stool examinations were done by the parasitology department of the Army Medical Laboratory located in Tokyo. All American occupants and Japanese employees were interviewed. During the six weeks following 1 December 1946 when the first families moved into the area, approximately 80 per cent of all the American residents had noted one or more episodes of diarrhea of varying severity, although sixty per cent of them had failed to report it until questioned by the medical officer.

Stool examinations of all American and Japanese occupants were begun 24 January 1947, repeated twice at weekly intervals, then twice at two-week intervals. Of 169 Americans (residents and a few dinner guests) 150 or 88.8 per cent harbored one or more intestinal parasites; of this group 100 Americans or 59.2 per cent had cysts or trophozoites of E. histolytica. (See Table I).

TABLE I

Total Americans examined	169	
Total Americans with one or more intestinal parasites	150	88.8%
Total Americans with intestinal protozoa	149	88.2%
E. histolytica	100	59.2%
E. coli	42	24.9%
E. nana	94	55.6%
G. labmiia	120	71 %
C. mesnili	16	9.5%
E. hominis	5	3 %
Total Americans with intestinal helminths	7	4.1%

Of 253 Japanese employees examined 243 or 96 per cent showed one or more intestinal parasites. Of this group of employees, however, only 52 or 20.6 per cent had cysts or trophozoites of E. histolytica. It was learned that very few of the Japanese actually lived in the area; they had consumed relatively little food and water there compared with the Americans. (See Table II).

TABLE II

Total Japanese employees examined	253	
Total Japanese employees with one or more intestinal parasites	243	96 %
Total Japanese employees with intestinal protozoa	182	71 %
E. histolytica	52	20.6%
E. coli	86	34 %
E. nana	71	28.1%
G. lamblia	116	45.9%
I. butschlii	4	1.6%
C. mesnili	15	5.9%
Total Japanese employees with intestinal helminths	205	81 %
A. lumbricoides	165	65.2%
T. trichiura	91	36 %
Hookworm	39	15.4%
T. orientalis	32	12.6%
E. vermicularis	4	1.6%

Stool examinations of approximately 25 American residents complaining of diarrhea during February 1947, revealed no organism of the typhoid, paratyphoid or dysentery groups.

Clinical Manifestations:

Diarrhea was the most commonly reported finding among the American occupants. (It was practically impossible to elicit a history of symptoms from the Japanese employees since they feared admission of diarrhea, abdominal pain, etc. would result in terminating their employment). Among the Americans infected with E. histolytica, the mildness or lack of symptoms was notable.[1] Fully 25 per cent of these patients gave no history of gastrointestinal complaints since arriving in Japan;

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1 These were normally evacuated stools. The 406th Medical General Laboratory in Tokyo did saline and iodine smears of all specimens submitted by the American residents. An "ether sedimentation technique" in which a centrifuged saline suspension, fixed with formalin, centrifuged after addition of ether, stained with iodine, was also used on the American specimens. This last technique was the only method used in examining the Japanese specimens. Direct smears accounted for only 60 per cent of the total protozoans found, and for 55 per cent of the total helminths found. Only in diagnosing ascaris infection were direct smears believed to be equally as good as the ether sedimentation technique.

40 per cent had noted one or more 2-4 day episodes of only 2-3 loose stools per 24 hours. Approximately 28 per cent averaged 4-8 stools per 24 hours; only 7 per cent averaged 8-15 stools per 24 hours. (See Table III).

TABLE III

Americans with E. histolytica on stool examinations	100
No gastrointestinal symptoms elicited	25
2-3 loose stools per day	40
4-8 stools per day	28
9-15 stools per day	7

Most of the patients who gave any history of diarrhea also reported that they concurrently experienced occasional mild colicky pains in the lower abdomen, especially just before and after defecation. Practically all the patients (during diarrhea) also noted vague "bloating" epigastric discomfort after meals. Relatively few (approximately ten per cent) reported nausea and vomiting.

Occasional headache, malaise, anorexia, and irritability could not be related to amebiasis as these complaints were frequent among all occupation personnel.

Slight tenderness in both lower abdominal quadrants, somewhat more marked in the ileo-cecal region, in approximately 75% of the patients during their diarrheal bouts was the only significant finding on physical examination.

Sigmoidoscopic or proctoscpoic examinations were not routinely carried out, mainly because it was felt that such procedures in an acute epidemic would yield little additional information to that gained from the stool examination techniques. Klatskin in reporting over 500 cases of amebiasis among American troops stationed in India abandoned routine proctoscopy after finding that only one-third of his cases exhibited mucosal changes, and in many not sufficiently characteristic to diagnose amebiasis; in his series direct smears from the mucosa were only rarely positive for E. histolytica after three stools were negative.[2] Sigmoidoscopic studies were made of only four American patients; they were admitted to the hospital in Tokyo during severe diarrhea.

Barium enemas were done in only two cases in order to attempt to exclude non-amebic lesions where symptoms had failed to respond to amebic therapy.

It is not possible to indicate how many American and Japanese occupants had slight fever, leucocytosis, increased sedimentation rates,

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2 Klatskin, Gerald, "Observations on Amebiasis in American troops stationed in India", Annals of Internal Medicine, Vol.25, No.5, November, 1946, p.779.

etc., during diarrhea as these studies were unfortunately not done.

No cases of amebic hepatitis were diagnosed. The liver was palpable in only one patient; this was first noted one month following treatment when the patient developed a buttock abscess (Staph, aureus, B. coli) at the site of previous emetine injections. His liver was never tender and remained palpable for only one week. One other patient who had no gastro-intestinal symptoms, and whose stools had failed to show E. histolytica suddenly developed moderate jaundice with a palpable, non-tender liver in March 1947, approximately three months after the first cases of intestinal amebiasis had been reported. He was diagnosed "infectious hepatitis" at the hospital, discharged after three weeks, and has remained asymptomatic to date.

Sources of Infestation with E. histolytica

From the outset of the epidemic it was felt that there had been at some time rather extensive fecal contamination of the drinking water system throughout the area. It was not believed that the epidemic had been food-borne. They were supplied with food similar to that served from a master menu for the entire Tokyo area. Although much of the preparation and serving of the food was done by Japanese, they were carefully supervised by American personnel, a practice again comparable to that in other Army mess installations throughout Japan. While approximately ten (10) asymptomatic kitchen help (including a chief cook) and waitresses were found to have stools positive for cysts of E. histolytica, it was felt that it was most unlikely that this fact could account for the marked protozoan infestation among the American residents. Also subsequent stool examinations among Japanese kitchen help in other Army mess installations in the Tokyo-Yokohama area have revealed approximately the same number of Japanese infected with intestinal E. histolytica.

Circumstances, however, involving the drinking water system in the area were soon elicited which are believed to have accounted for the epidemic. The area water supply had been investigated thoroughly before December, 1946, and had been found to have been free of fecal contamination; it has since proved to be so for Tokyo at large. No water samples had been taken from the pipes within the particular area in question until January 10, 1947; the samples were essentially negative. But the following conditions were found to have existed just before that time. The incoming drinking water pipe entered the area at street level, then dropped some 20 feet, passed through a main, divided into two pipes which passed up to the street level again to several booster pumps which elevated the water to storage tanks. A large sewage tank, approximately 10' x 10' x 10' also stood in this sub-street level; the metal tank enclosed in 3" cement walls received sewage from the latrines; this was then pumped into the city sewage system. This sewage tank leaked in several places. The main in the drinking water line also leaked; the booster pumps just above it could have very conceivably

sucked sewage into the entire drinking water system. Japanese engineers employed in this area admitted that on several occasions during later November and early December, 1946, they had observed that the water level had submerged the (presumably leaking) drinking water main. American families had begun occupying the area December 1; the first diarrhea had been noted December 15, 1946.[3] By January 15, 1947, Army Engineers had discarded this sub-street level water line, piping the incoming water directly to the booster pumps. Any subsequent opportunity to prove contamination at the site of the main by the use of dyes was lost with this change. Nor was it possible to recover protozoan cysts from the elevated drinking water storage tanks because the Japanese had promptly drained and cleaned those tanks one week after the epidemic began.

Lyster bags were issued in January, 1947, and have been in use since.

Treatment:

The period of potential exposure to infestation with E. histolytica had been relatively brief (at the most approximately 45 days); it was felt that parasite invasion of the tissues had been minimal. Seventy-five (75) of the American patients exhibiting E. histolytica in their stools, with mild symptoms (or asymptomatic) were given carbarsone orally 0.25 gm., three times daily for seven (7) days followed by diodoquin orally 0.63 gm., three times daily for seven (7) days.[4] Chiniofon was not used in view of the reported increased diarrhea following its administration.

Tallant and Maisel noted diarrhea and abdominal discomfort in 36% of their patients treated with Chiniofon.[5] Fifty-two (52) Japanese

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3 The incubation period in the 1933 Chicago epidemic was also approximately two weeks. See National Institute of Health Bulletin No. 166, "Epidemic Amebic Dysentery. The Chicago Outbreak of 1933".

4 During the epidemic the GHQ Medical Consultant requested that for a time all American patients in the area with diarrhea but in whom multiple stool examinations had failed to reveal amebiasis be treated. Seven such patients (1-10 stools per day) received full courses of carbarsone and diodoquin; one such patient also received a full course of emetine. Four initially had G. lamblia in their stools; three of these appear to have lost their G. lamblia and report no further diarrhea; the fourth patient (who had received emetine) still complains of loose stools, is still showing G. lamblia. Of the remaining three, one patient continues to have several loose stools per week with occasional abdominal discomfort.

5 Tallant and Maisel: "Amebiasis Among the American Armed Forces in the Middle East", Archives of Internal Medicine, Vol.77, No.6, June, 1946.

employees also received these dosages of carbarsone and diodoquin.

Twenty-four (24) American patients with somewhat more marked diarrhea and with positive stools were given emetine hydrochloride intramuscularly 0.03 gm., twice daily for seven (7) days. During the same time the patient received carbarsone orally 0.25 gm. three times daily, followed by diodoquin 0.63 gm. three times daily for seven (7) days. While receiving emetine and for two days thereafter patients were at bed rest except for bathroom privileges. Blood pressures were recorded one-half hour before and after each emetine injection; the chest was auscultated daily. Most of the patients received .025 gm. thiamine hydrochloride during emetine administration in an attempt to diminish the potential cardiac effects of the drug. None of the Japanese employees received emetine.

A separate mess was established for all patients, providing a bland diet, high in protein, low in carbohydrate following Hegner and Eskridge's work indicating that such a diet tends to retard the multiplication of E. histolytica in the intestine.[6] Alcohol and candy were prohibited during treatment. Patients receiving carbarsone and diodoquin, while ambulatory were encouraged to rest as much as possible. Patients were seen daily in an attempt to insure cooperation in taking their medication as scheduled.

Complications during Treatment:

No severe reactions were noted during therapy. Approximately 18% of the Americans (including some previously asymptomatic) receiving the carbarsone and diodoquin series complained of 2-6 (rarely more) stools per day associated with lower abdominal tenderness and discomfort; this persisted for one month following treatment; this group has remained asymptomatic since. Whether this represented a transient chemical colitis or a slowly healing mucosa following amebic infection is difficult to determine.

Skin reactions were rare. One American developed a mild pruritic dermatitis involving the arms and chest after one day of diodoquin; this promptly subsided after the diodoquin was discontinued. One other patient developed a similar response to carbarsone.

Pruritis ani appeared in three patients during treatment; it responded favorably to nupercain suppositories. However, this condition has recurred in severe form in one patient who underwent a hemorrhoidectomy three months after his carbarsone and diodoquin

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6 Hegner, R. W. and Eskridge, L., "Influence of Carbohydrates on Intestinal Protozoa in Vitro and in Vivo", American Journal of Hygiene, Vol. 21, January 1935.

treatment.

Of twenty-four (24) patients treated with emetine, only eleven (11) did not develop complications of one sort or another.[7] Thus the drug was discontinued after several days in five patients (four females, one male because of blood pressure drops below either 95 systolic or 65 diastolic. In two additional cases emetine was discontinued after the development of extrasystoles. It was also stopped in three pregnant patients for whom it had been inadvertently prescribed. In one instance a severe diarrhea (10-15 stools per 24 hours) developed after five days of emetine, and subsided with withdrawal of the drug. All the patients complained of painful injection sites (intramuscular); two had completed the course develcped severe cellulitis; one of these patients subsequently spent several months in the hospital with abscess formation (Staph aureus, B. coli) at the site.

Results of Treatment; a Preliminary Statement:

After treatment normally evacuated stools were examined on:

a. the day following the end of treatment,

b. two weeks later,

c. two weeks after b.,

d. four weeks after c.,

e. four weeks after d.

And following this schedule stools of most of the patients have been examined monthly.

Of one hundred (100) Americans treated for amebiasis all except three patients have had negative stools for E. histolytica after one course of treatment (i.e. either the emetine-carbarsone-diodoquin series or the carbarsone-diodoquin series). Of these remaining three patients (they had received the carbarsone-diodoquin series) two have not shown E. histolytica, after a second course of carbarsone and diodoquin in the same dosage as first given. One patient continues to pass cysts.

Follow-up statistics on the fifty-two (52) Japanese employees treated with carbarsone and diodoquin are not reliable; the Japanese, despite repeated reassurance, persisted in fearing that they would lose

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Two of these patients treated with emetine who did not develop reactions were a 42-year-old female and a 32-year-old male who inadvertently had received the drug on an ambulatory basis in a dispensary elsewhere in Tokyo before medical officers had been assigned to the area.

their jobs; thus in many instances they submitted stool specimens of known negative as their own. It has likewise been almost impossible to elicit any post-treatment symptoms from them.[8]

Seventeen (17) of the one hundred Americans treated for amebiasis are still experiencing, five months after treatment, bouts of 2-4 loose stools per day with mild lower abdominal cramping 1-4 times each month. Repeated stool examinations show no E. histolytica although more than half of this group are still harboring G. lamblia.[9] Three of these patients have been admitted to the hospital for sigmoidoscopy, barium studies etc. One patient diagnosed mucous colitis, chronic, cause undetermined, gave a history of occasional similar diarrhea occuring during the last two years. Another such patient had been treated with emetine, carbarsone and diodoquin for diarrhea appearing during the epidemic, although E. histolytica had never been found. She has been diagnosed colitis, acute, cause undetermined at the hospital; her diarrheal bouts appear to be slowly decreasing in frequency and severity. The third patient despite negative bacteriological reports in January, 1947 was found to have Salmonella organisms in April, 1947; since sulfonamide therapy she has improved, although she is still regarded as one of the group of symptomatic patients.

Fifty-six (56) Americans have never revealed E. histolytica in their stools although their incidence of G. lamblia may account for the fact that 29% give a history of one or more attacks of diarrhea during January and February 1947, and four members of the group still have occasional episodes. These occupants are also still having stool examinations for E. histolytica at approximately monthly intervals.[10]

Summary

1) Findings are presented relative to an epidemic outbreak of amebiasis among one hundred (100) Americans and fifty-two (52) Japanese in a specific area in Tokyo December 1946-June 1947.

2) Circumstantial evidence indicates that the epidemic was caused by inducing fecal contamination into the water system through loose connections, while booster pumps were in action.

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8 All suspected Japanese were removed from kitchen work, but were assigned other work.

9 All American residents in the area still haroring G. lamblia are being treated with small doses of atabrine; a report of this series will be made at a later date.

10 During May, 1947, E. histolytica was discovered in the stools of two American occupants whose previous examinations had been consistently negative.

3) Approximately 65% of the patients had mild symptoms.

4) Seventy-five percent of the patients were treated with carbarsone and diodoquin; the remainder received emetine concurrently with carbarsone.

5) Of the total number of patients treated, only one still continues to pass cysts of E. histolytica.

6) Seventeen percent of the patients treated are still having occasional episodes of mild diarrhea and/or abdominal cramping.

XV. Handling of Blood Specimens for Clinical Chemistry - E. H. Kaufman, Captain, MC, Chief Chemistry Section, 406th Medical General Laboratory

Mishandling of blood specimens prior to analysis often destroys the value of the specimens or produces erroneous results. The most frequent errors involve production of hemolysis, contamination of specimens, the use of non-fasting blood, presence or absence of anti-coagulant, and absence of a preservative.

Where plasma or serum is required rather than whole blood, hemolysis should be scrupulously avoided. The tourniquet is applied to the arm for as short a period as possible. Needles and syringes must be clean and dry. The blood is handled gently throughout, with no excessive pressure or rude shaking. When more than one hour will elapse between drawing of blood and receipt by laboratory, separation of cells or clot from plasma or serum is essential prior to shipping. This last is of particular importance for bilirubin, chloride, icterus index, phosphatase, phosphorus, potassium and sodium.

It should be remembered that tap water contains many inorganic ions and the coating of these left on the syringe may be sufficient to introduce serious error. For determinations of the inorganic constituents of blood, syringe and tube should have been washed with distilled water and dried before use.

Fasting blood is, in general, preferable for analysis. For some determinations it is mandatory.

The anti-coagulant used must be appropriate in kind and quantity. In general, lithium oxalate is preferred. Sodium, potassium, or ammonium oxalate may also be used except that ammonium oxalate must not be used for non-protein nitrogen determinations and potassium oxalate is contraindicated in uric acid analyses. For any of these salts, use sufficient to give a concentration of 0.1 to 0.2% in the specimen. Less than 3 cc of blood introduced into a tube containing oxalate sufficient for 10 cc will produce serious changes in the plasma-cell equilibrium, even resulting in hemolysis.

For some determinations minimum exposure and agitation of blood in air is essential. This is true not only for the gaseous constituents of blood but also, because of indirect effects on plasma-cell ratios, for the inorganic ions such as chloride, bromide, and sodium.

Specimens in which there will be delay in the analysis require special precautions against evaporation, enzymatic changes, and bacterial decomposition. Tight stoppering of tubes prevents evaporation. Refrigeration at 0 to 4°C slows down other changes for up to 24 hours. Sodium fluoride, in the ratio of 10 mg per cc will retard changes for up to one week providing the specimen has been collected under sterile conditions and placed in a sterile tube. In some instances, it is best to stop enzyme action by protein precipitation prior to shipment of the specimen. For sugar analyses, because of the rapid glycolysis which occurs, it is advisable to add fluoride routinely, although the specimens then become unfit for urea and chloride determinations.

These points are tabulated below for individual blood analyses. The quantities of blood indicated are adequate for a single type determination in duplicate. For multiple determinations smaller quantities than the numerical sums of these figures are adequate.

Analysis	c.c. of blood to collect	Maximum time between collection & analysis		Precautions
		No preservative	Preservative	
Whole Blood				
Alcohol	8 cc	24 hours with refrigeration	72 hours with sodium citrate 50 mg and sodium fluoride 75 mg per 10 cc	1. Syringes and needles used to draw blood and skin surface must not be wet with alcohol. 2. Handle and transmit specimens with all precautions due legal evidence.
NPN	5 cc	24 hours with refrigeration	1 week with fluoride or after protein precipitation & filtration	Do not use ammonium oxalate as anti-coagulant.
Sugar	5 cc	1 hour without refrigeration, several hours with	1 week with fluoride or after protein precipitation & filtration	Best to routinely add 10 mg fluoride per cc

Sulfonamides	5 cc	Indefinite	Indefinite	1. Do not use fluoride; it inhibits urease action.
Urea	8 cc	1-2 days if sterile	--------	2. Use fasting blood.

Plasma (*) or Serum - Serum may be used in all cases

*Amylase	8 cc	1 hour without refrigeration 24-48 hours with	---------	1. Avoid hemolysis. 2. Separate cells and serum immediately.

Analysis	c.c. of blood to collect	Maximum time between collection & analysis		Precautions
		No preservative	Preservative	

Plasma (*) or Serum - Serum may be used in all cases

Bilirubin	5 cc	Within 2 hours for "direct" reaction, 2 days for quantitative		1. Avoid any trace of hemolysis. 2. Separate clot immediately. 3. Use fasting blood.
Bromide	10 cc	Indefinite	Indefinite	As for chloride.
Calcium	8 cc	Indefinite if sterile	Indefinite Do not use fluoride	1. Syringe and tube must be cleaned with distilled water and dried before use. 2. Separate clot immediately. 3. Best to ship the protein free filtrate made with trichioracetic acid. 4. Use no oxalate.
Cephalin Flocculation	5 cc	4 hours without refrigeration 24 hours with	--------	1. Syringe and tube must be scrupulously clean.

				2. Heavy metal ions in traces interfere.
*Cholesterol	5 cc	2 hours for esters without refrigeration, 1 or 2 days with. Indefinite for total cholesterol.	--------	1. Avoid hemolysis. 2. Separate cells immediately.
*Creatinine	5 cc	a few days	1 week with fluoride	1. Avoid hemolysis. 2. Separate cells immediately.

Analysis	c.c. of blood to collect	Maximum time between collection & analysis		Precautions
		No preservative	Preservative	
		Plasma (*) or Serum - Serum may be used in all cases		
*Chloride	5 cc	Indefinite	Indefinite	1. Syringes & tube must be washed with distilled water & dried before use. 2. Avoid escape of CO_2 before separation of cells. 3. Separate cells as soon as possible. 4. Avoid excess oxalate. 5. Use neutral oxalate.
Icterus Index	5 cc	Indefinite	Indefinite	1. Use fasting blood. 2. Avoid any hemolysis. 3. Separate clot immediately.
Phosphatase	10 cc	2 hours at room temperature, 24 hours in refrigerators	----------	1. Avoid hemolysis. 2. Separate cells immediately.
*Phosphorus	8 cc	a few hours	Indefinite for trichloractic acid filtrate	1. Avoid hemolysis. 2. Separate cells immediately.

				3. For shipping send protein free trichloracetic acid filtrate.
Potassium	5 cc	48 hours	--------	1. Avoid any hemolysis. 2. Separate clot immediately.
Protein & A/G Ratio	5-8 cc	2-3 days	Indefinite	As for chloride.

Analysis	c.c. of blood to collect	Maximum time between collection & analysis		Precautions
		No preservative	Preservative	
Plasma (*) or Serum - Serum may be used in all cases				
Sodium	5 cc	Indefinite	Indefinite	As for chloride.
*Uric Acid	5 cc	A few hours.	1 week with fluoride	1. Avoid hemolysis. 2. Separate cells. 3. Do not use potassium oxalate as anti-coagulant.

Information discussed in this article summarizes and supplements the material in TM 8-227, "Methods For Laboratory Technicians", October 1946, pp. 169-173.

For information relative to the handling of toxicological specimens see Monthly Circular Letter, Number 6, June 1947. Medical Section, General Headquarters, Far East Command.

XVI. Aberrant Thyroid Tissue in Relation to Malignancy - Case Report by Captain C. L. Clark, MC, 49th General Hospital, Discussion by Lt. Col. W. F. Bowers, Surgical Consultant, General Headquarters, Far East Command.

A 17 year old white male soldier entered the 49th General Hospital on 3 June 1947 because of a small mass approximately 4 x 4 cm. in size which had been present in the left carotid triangle of the neck for approximately 3 years. This mass had been asymptomatic but the patient thought that it had become harder in the past three months. He had experienced no illness preceeding the appearance of the mass and to the best of his knowledge, there has been no fever. He stated that he had lost about 15 pounds in weight during the past 1½ years. The remainder of the history was non-contributory.

A general physical examination revealed no abnormal findings except for the neck, where a mass in the left anterior cervical region, approximately 4 x 4 cm., firm but not tender, nor attached to the skin, was described. There was a generalized cervical lymph adenopathy and the thyroid gland was described as being nodular but not firm nor markedly enlarged. Laboratory tests, including the blood count, urinalysis, sedimentation rate and heterophile agglutination all were reported as within normal limits. No atypical cells were seen in the blood smear. BMR on 11 June was -19. A diagnosis of non-toxic nodular goiter with aberrant thyroid was made and on 25 June the tumor mass was excised. It was located in the superior carotid triangle of the neck, posterior to the scaleni muscles at the level of the superior notch of the thyroid cartilage. The mass, which was enclosed by a thin capsule, measured 3 x 2.5 x 1.5 cm. It was firm, solid, and on cut section had the gross appearance of thyroid tissue. The postoperative course was not remarkable.

The patient was recalled to the hospital on 8 July because the pathological report of the aberrant thyroid tissue suggested the possibility of malignancy. At this time the thyroid gland was found to be firm and more nodular than on the previous admission. The BMR at this time was -2.

Operative exploration of the thyroid gland was performed on 14 July 1947 and the gland was described as being densely adherent to the capsule and surrounding tissues. There were multiple hard discreet nodules throughout its substance and it was felt clinically that this represented carcinoma of the thyroid. A biopsy was taken from the left lower lobe. Pathological report of this specimen was reported to show carcinoma of the thyroid, grade I, with metastasis to the cervical lymph nodes. The patient was evacuated to the ZI with the idea that radical neck surgery followed by X-Ray therapy would be necessary.

Discussion: Pertinent points are discussed in the order in which they appear in the case report.

Differential Diagnosis: In most instances, it is impossible to arrive at a definite diagnosis in the case of neck tumors preoperatively. This is partly due to the fact that such a large number of possibilities exist. Inflamatory nodes may be large and solitary but usually are accompanied by such laboratory findings as occasional fever, elevation of white blood count and increased sedimentation rate. Also, there are usually some local inflammatory findings. Tuberculous nodes offer a difficult diagnostic problem at times but a large solitary mass present for three years is rarely tuberculous. The various lymphoblastomata such as Hodgkin's Disease and lymphosarcoma can be diagnosed only on biopsy. Such unusual neoplasms as carotid body tumor cannot be diagnosed ordinarily, preoperatively, although carotid body tumors may show two special physical findings. First, the tumor may move

laterally but due to its fixation in the carotid bifurcation it cannot be moved in a longitudinal plane. The second positive finding may be the development of syncope on pressure over the tumor. The most common tumor mass in the neck is a branchial cyst which is relatively common in the military age group. These cysts, although congenital, rarely appear before young adult life and usually come up suddenly after an upper respiratory infection so that an inflammatory mass frequently is suspected. Needle aspiration of cervical masses for purposes of diagnosis is not advised because it rarely contributes any positive information. Actual harm may be done if the mass is infected, is a malignant neoplasm or is an aneurysm. Aberrent thyroid tissue is relatively rare and is suspected by the position of the mass at the border of the sternomastoid muscle. Determination whether such a mass is cystic or solid is almost impossible on physical examination.

Thyroid Nodules: Rice in a study of supposedly normal thyroid glands found a 50% incidence of nodules. The significance of thyroid nodules has been a matter of considerable discussion in the literature as it has been stated by one group of investigators that 16% of thyroid nodules are or will become malignant. The pathogenesis of thyroid nodules is not exactly known but there are certain periods during which the thyroid gland undergoes generalized hyperplasia. These periods include puberty, pregnancy and times of severe emotional stress. Ordinarily this hyperplasia regresses evenly but if for some unknown reason regression is spoty in character, islands of hyperplasia remain and these form the nodules which are incorrectly called adenomata. It is frequently observed, as in this instance, that the basal metabolic rate is low in the case of patients with thyroid nodules. An additional finding, also demonstrated in this case, is the elevation of the metabolic rate to a more normal level following an operation upon the thyroid. The explanation for this lowered metabolic rate is not entirely known and may be either inhibition by secretion of the nodules or reduced function due to the pressure of the nodules on the remaining normal tissue.

Pathology of Aberrant Thyroid: Different pathologists are apt to give various diagnoses from the same slides prepared from aberrant thyroid tissue. This is true of any tissue in which evidence of malignancy is so low grade that carcinoma cannot be clearly diagnosed. The so-called benign metastasizing goiter is a good example where malignancy is not clearly demonstrated microscopically. In such cases metastases from distant sites such as the tibia are reported as normal thyroid tissue by pathologists. For this reason it is difficult to evaluate the pathologic report on aberrant thyroid tissue but King and Pemberton in 1942 stated that all aberrant thyroid tissue is in reality metastatic carcinoma in cervical lymph nodes with the primary focus being in the thyroid gland. The clinical course in the case under discussion tends to bear out this contention.

Treatment of Aberrant Thyroid: Surgical results for carcinoma of the thyroid have not been entirely satisfactory but probably are better than irradiation therapy. Grade I malignancies such as described here are composed of sufficiently adult tissue so that they are not particularly radiosensitive.

It has been demonstrated that even if tissue is radio-sensitive this does not necessarily mean a high rate of radio-curvitidy. Surgical extirpation seems to be the treatment of choice and in this particular case the best treatment is thought to be excision of the aberrant nodule with homolateral thyroidectomy. It is to be emphasized that a complete extracapsular removal is necessary and it should be stressed that the superior laryngeal nerve may be sacrificed if necessary in order to effect complete removal. Finally, in view of the relatively rapid progressive changes in the thyroid in this case it is not felt that the prognosis is good.

XVII. Acute Pancreatitis - Capt. C. L. Clark, MC, 49th General Hospital, Discussion by Lt. Col. W. F. Bowers, MC, Surgical Consultant, General Headquarters, Far East Command.

A 42-year old white officer was admitted to the 49th General Hospital at 2000 on 2 July with acute abdominal pain. Six hours prior to admission, the patient experienced the gradual onset of generalized abdominal pain. This increased in severity, and was most marked in the right upper abdominal quadrant and around the umbilicus. This pain was described as "boring through to the back". Before coming to the hospital the patient vomited 15 times and the vomitus contained blood clots. He was given ½ grain of morphine without complete relief of pain. On entering the hospital temperature was 98.6°, pulse 74, respirations 24, blood pressure 150/90, and white count 12,000. The abdomen was flat but rigid with generalized board-like spasm, more marked along the right side. Rebound tenderness was present. An abdominal X-ray film showed no free air under the diaphragm.

The patient stated that there had been similar but more mild episodes during the past three years, with pain radiating on occasions to the right shoulder, back and substernal area. These attacks had kept him in bed for several days. There was no history of qualitative or quantitative food idiosyncrasy.

Within an hour after hospital admission the patient was operated upon, with a diagnosis of perforated peptic ulcer. On entering the abdomen a moderate amount of free blood-tinged peritoneal fluid was encountered and the foramen of Winslow was closed by a fine plastic exudate. The lesser sac was bulging and under pressure. There was swelling of the entire pancreas with edema and on the anterior surface of its mid-portion there was a hemorrhagic-necrotic area approximately 1.5 cm. in diameter. The lesser sac was opened and a large amount of gray, blood-tinged fluid was aspirated. The lesser sac was drained through the gastro-colic omentum after exploration of the stomach, duodenum, gall bladder, and accessory ducts had revealed no abnormalities. The blood amylase level, six hours after operation was reported as 220 units. Subsequently, daily determinations were reported to show 136, 95 and 49 units.

The postoperative course was not eventful and follow-up studies revealed a normally functioning gall bladder, normal glucose tolerance curve, negative cephalin flocculation test, and a urine hippuric acid excretion of 2.59 grams.

The patient returned to duty.

Discussion: Pertinent points are discussed in the order in which they appear in the case report.

Type of Pain: Intermittent crampy, colicy pain indicates periodic stretching of a hollow viscus whereas constant severe pain means either compromise of blood supply or peritoneal irritation from some chemical source. Pain due to bacterial inflammatory exudates is mild in character as compared to pain due to chemical agents such as bile, hydrochloric acid or pancreatic juice. It is stated that the pain of pancreatitis is the most severe pain known.

Bloody Vomitus: No particular stress should be laid upon the fact that blood appears in the vomitus after 15 episodes of retching such as are reported in this case. Any patient who vomits more than two or three times in a short space of time is apt to bring up a small quantity of blood. The presence of coffee-ground vomitus, indicating a more lengthy stay of blood in the gastric cavity, is more significant.

Pulse and Blood Pressure Level: It is to be emphasized that acute pancreatitis and perforated peptic ulcers are not immediately accompanied by shock. The pulse in this instance was 74 and the blood pressure 150/90. The best surgical opinion agrees that shock in practically all instances is due to decrease in circulating blood volume rather than to such nebulous theories as absorption of toxins or nerve stimulation. In cases of perforated peptic ulcer, bile spillage into the peritoneal cavity or acute pancreatitis shock may develop at a considerably later period due to the fact that large amounts of fluid are poured out into the peritoneal cavity in an attempt to reduce the abnormal peritoneal content to isotonicity so that it can be absorbed. This out-pouring of fluid decreases circulating blood volume and shock is apt to supervene. Such a mechanism is the usual cause of death in bile peritonitis.

White Blood Count: The leukocyte count of 12,000 in this instance is much lower than would have been expected. Counts of 20,000 to 30,000 are not unusual in chemical peritonitis.

Subdiaphragmatic Air: The demonstration of air under the diaphragm is definite proof of hollow viscus perforation but its absence is not necessarily a positive diagnostic aid. It has been shown that as little as 4 cc of air can be demonstrated under the diaphragm on appropriate X-ray examination but the patient must be in an upright position sufficiently long for this air to migrate to a subdiaphragmatic position and this migration presupposes that there are no hindering adhesions. In cases of actual perforation of peptic ulcers there may be no free air in the peritoneal cavity if the patient is kept in a recumbent position. This is due to the fact that the perforation is on the anterior wall of the duodenum in almost every instance and the stomach air remains in the cardiac end. If the patient assumes an upright position the stomach is more apt to empty, allowing the escape of gastric contents and air.

Rebound Tenderness: Rebound tenderness is probably the most accurate

sign of peritoneal irritation and is a response on the part of the subperitoneal tissues to chemical irritation. The mild irritation of inflammatory exudates causes slight edema with the minimum pressure on nerve endings and little rebound tenderness. The more severe reaction of the irritating chemicals, such as pancreatic juice, evoke a much greater edematous response.

Repeated Attacks: A history of previous attacks in this case gives the impression that there have been episodes of acute cholecystitis or acute pancreatitis. It has been shown rather clearly that acute cholecystitis is caused in most instances by a regurgitation of pancreatic juice into the gall bladder. Experimentally it has been shown by Bisgard that regurgitation of pancreatic juice into the gall bladder will cause acute cholecystitis with subsequent stone formation. Also, in clinical cases of acute cholecystitis pancreatic enzymes have been isolated from the gall bladder fluid. It is definitely known that acute pancreatitis is caused by regurgitation of bile into the pancreatic ducts. It is believed that the site of pathology is at or near the ampulla of Vater. Anatomical studies have shown that in 60% of individuals the pancreatic and biliary ducts empty separately into the duodenum but in the other 40% of individuals reflux into the pancreatic or biliary ducts is possible. With such an anatomical mechanism existing, differences in secretory pressures within the gall bladder and pancreas determine whether acute pancreatitis or acute cholecystitis will develop.

Advisability of Laparotomy: In view of the fact that free air in the peritoneal cavity is not always present in perforated peptic ulcers, laparotomy probably is indicated when such a diagnosis is entertained. However, if free air is absent, blood or urinary amylase determination is indicated. The surgical treatment of pancreatitis is a matter of some discussion. It seems inadvisable to make incisions into the pancreas for drainage and certainly draining the peritoneal cavity has no advantage. The only procedure with definite value is one which aids in reducing the pressure within the pancreatic duct system and to this end drainage of the gall bladder may be indicated. In some instances simple manual emptying of the gall bladder has sufficed to bring about regression of acute pancreatitis.

Postoperative Laboratory Tests: It has been shown experimentally that acute cholecystitis resolves without functional impairment so that the finding of a normal cholecystogram in this case is not significant. In many instances of severe hemorrhagic pancreatitis the glucose tolerance test remains normal, even though as much as one-half to three-fifths of the pancreas has been destroyed.

Possible Late Sequelae: An individual who has had repeated attacks of acute pancreatitis or acute cholecystitis most likely has an abnormality of the duct system which predisposes to future exacerbations. This should be explained to the patient so that he will seek medical aid early in an attack. Mild, acute pancreatitis usually heals without residuals although chronic fibrosis may eventually result. If pancreatic tissue becomes necrotic a pseudocyst usually develops requiring surgical intervention. A pancreatic fistula may develop and in this case where there was pressure necrosis of one area on the surface of the pancreas such a possibility would be considered. However, a permanent fistula usually involves a major duct and a small necrotic area usually is obliterated by adhesions to adjacent organs.

XVIII. A Resume from Official Dental Publications - Colonel Thomas C. Daniels, Dental Consultant, Medical Section, General Headquarters, Far East Command.

The preparation of the mouth is of utmost importance in the making of a partial denture. The teeth should always be thoroughly cleaned, thereby permitting a more accurate impression. All preparations and restorations should be completed on individual teeth so that the contour will not change after the impressions are taken and the casts are sent to the laboratory.

Functional relationship of the mandible and maxillae should be considered. Mal-positioned teeth must often be reduced to afford sufficient denture space. It is often necessary to extract elongated posterior teeth that have existed for a long period without an occluding tooth. The removal of sharp pointed posterior cusps, especially when such teeth are to occlude with artificial teeth, will help to eliminate cusp interference and create a more smoothly functioning condition.

In preparing rest areas the occlusion should be thoroughly checked and the teeth to support such rests be prepared to accommodate this addition. This preparation does not mean that the mesial and distal contour be eliminated or defaced with a separating disk, since this procedure would result in the early loss of the supporting teeth. It does, however, permit the spot grinding of a filling or a marginal ridge to create a definite smooth seat for the occlusal rest.

Irregular tooth surfaces beneath an occlusal rest only complicate the accurate approximation of the rest to the tooth surface and also afford a likely area for the start of dental caries. Deep mesial or distal pits and grooves crossing the marginal ridge in an occlusal rest area should be eliminated insofar as it is possible without penetrating the enamel. The tooth preparation for double or single crib clasps should be for the reception of two occlusal rests and a sufficient reduction in the two approximating marginal ridges to accommodate one or two pieces of clasp wire, as the case might be, without eliminating the original contact of the two teeth. The reduction of the occluding interdigitating cusp is generally necessary.

The mouth having been prepared, a suitable tray is selected. Frequently the tray will require post-damming or building up in the palatal section to permit an accurate impression of the vault of the mouth. If these areas are not checked in detail, the resulting casts may not be accurate and a definite drawing will be evident in these regions.

One must also be sure that the impression material used is set up before removing from the mouth. Casts show that a drawing around the necks of the teeth may be the result of too early a removal of the impression.

Following the removal of an impression in an alginate material it should be thoroughly washed in cold running water if possible for approximately ten minutes and then placed in a fixing bath for another fifteen minutes. Prior to pouring the impression all excess water should be removed.

If upper and lower casts will definitely occlude, a bite will not be necessary, but casts should have at least two penciled lines on each side drawn across opposing teeth. Select the surfaces of two teeth that coincide and draw, as nearly as possible, a continuous line from the upper tooth to the lower tooth, denoting centric occlusion.

If centric occlusion cannot be determined in the above manner, baseplate bite rims built up with wax and reinforced with heavy wire will be necessary. Paper clips are entirely too flexible to be used as reinforcement. Baseplates should be well adapted to the casts and built up with pink baseplate wax. This wax should be thoroughly warmed and the patient instructed to close in centric. The excess wax should be removed so that the opposing teeth barely contact the pink wax. The surface of this wax should again be thoroughly warmed and the patient instructed to close in centric occlusion. Chill and remove from the mouth. Cut off 1½ to 2 mm from the occlusal surface of the pink wax and any base plate that contacts the opposing arch. (This will create a space between the bite rim and the opposing arch). Add a small piece of boxing wax or tooth carding wax (which will be furnished by the Central Dental Laboratory upon request) upon the occlusal surface of the pink base plate wax; warm the wax thoroughly and have the patient close in centric. The registration of the opposing teeth in this wax should not contact the pink baseplate wax or engage the opposing teeth over a depth of 1 mm. With the models articulated in the bite rim, cross check between the patient and the models to verify that the centric occlusion recorded is correct.

Extreme softening of the wax cannot be emphasized too much. Unless wax is extremely soft, the base plate will compress tissues. However, this is not true of alginate impression materials. Thus, casts articulated with a bite which compresses tissue will open the bite on the articulated casts, and a denture with an open bite will be the result.

The successful utilization of a denture frequently requires a conditioning of the mental attitude of the individual. It is just as important to explain properly to the patient the various problems encountered in the wearing, as well as the care of the artificial denture, as it is to obtain a good impression and cast from which it is made. The patient should be instructed concerning the possible resorption of the alveolar ridges, the potential sore spots, and the need for adjustments.

PART III

STATISTICAL

XIX Evacuation:

1. During the period 28 June 1947 to 25 July 1947, the following patients were evacuated from the several major commands:

	AIR	WATER	TOTAL
JAPAN	184	316	500
*KOREA	105	0	105
PHILRYCOM	51	56	107
MARBO	69	5	74

2. The following are the evacuations per thousand strength for the period 28 June to 25 July 1947:

JAPAN	4.0
KOREA	2.2
PHILRYCOM	2.0
MARBO	3.7
THEATER	3.2

3. As of 25 July 1947, the following number of patients were awaiting evacuation:

JAPAN	192
KOREA	62
PHILRYCOM	15
MARBO	23

XX Hospitalization:

1. The Bed Status Report as of 25 July 1947 was as follows:

	Total T/O Beds Present	Total T/O Beds Established	Total T/O Beds Occupied
JAPAN	4,450	4,450	2,732
KOREA	2,050	1,413	954
PHILRYCOM	2,350	2,063	1,583
MARBO	575	575	338
THEATER	9,425	8,501	5,607

*Patients were evacuated to Japan from Korea for onward evacuation.

2. The percent of T/O beds and operating beds occupied for the period ending 25 July 1947 are as follows:

	Percent T/O Beds Occupied	Percent Operating Beds Occupied
JAPAN	61	61
KOREA	46	76
PHILRYCOM	67	76
MARBO	58	58
THEATER	59	65

3. Tables showing various admission rates are listed below:

ADMISSION RATES PER 1,000 PER ANNUM

All Causes

Week Ending	THEATER	JAPAN	KOREA	PHILRYCOM	MARBO
4 July 47	548	596	609	489	289
11 July 47	712	775	811	639	308
18 July 47	761	844	853	638	342
25 July 47	772	796	930	702	404

Disease

4 July 47	489	533	545	440	233
11 July 47	646	707	732	597	214
18 July 47	687	759	795	584	240
25 July 47	704	729	864	654	273

Injury

4 July 47	59	63	64	49	56
11 July 47	66	67	78	42	93
18 July 47	74	85	58	54	102
25 July 47	68	67	66	47	130

Psychiatric

4 July 47	9	11	7	3.7	19
11 July 47	10	15	2	4.8	14
18 July 47	14	12	14	16	19
25 July 47	15	14	21	8	19

ADMISSION RATES PER 1,000 PER ANNUM

Organic Neurological Disease

	THEATER	JAPAN	KOREA	PHILRYCOM	MARBO
4 July 47	0	0	0	0	0
11 July 47	0	0	0	0	0
18 July 47	.8	.8	2	0	0
25 July 47	1.5	0	3	4	0

Common Respiratory Disease

4 July 47	59	67	76	38	34
11 July 47	101	99	110	128	27
18 July 47	111	111	114	139	27
25 July 47	111	86	137	168	54

Influenza

4 July 47	2.5	2.9	0	4.7	0
11 July 47	4.4	6.6	3	2	0
18 July 47	1.7	2.5	0	2	0
25 July 47	4.8	7.0	0	6	0

Primary Atypical Pneumonia

4 July 47	4	2.5	7	2.8	7
11 July 47	6	5.4	8	4.8	7
18 July 47	5	6	3	5	2.7
25 July 47	3	2.5	7	3	0

Common Diarrhea

4 July 47	5	1.7	10	9	0
11 July 47	17	5.4	52	23	0
18 July 47	17	7	61	9	0
25 July 47	17	7.2	58	12	0

Bacillary Dysentery

4 July 47	.8	0	0	3.7	0
11 July 47	1	0	0	4.8	0
18 July 47	1.7	1.2	0	5	0
25 July 47	.8	0	0	4	0

Amebic Dysentery

4 July 47	2.1	0	2	7	0
11 July 47	.6	.4	0	2	0
18 July 47	1.2	.8	1	3	0
25 July 47	2	.8	1	7	0

ADMISSION RATES PER 1,000 PER ANNUM

Malaria

	THEATER	JAPAN	KOREA	PHIIRYCOM	MARBO
4 July 47	12	.4	5	44	17
11 July 47	15	.4	8	52	19
18 July 47	12	1.7	3	51	0
25 July 47	19	1.2	10	75	8

Infectious Hepatitis

4 July 47	1.4	0	1	0	17
11 July 47	3	1.6	3	5.8	5
18 July 47	3.4	2.5	3	5	5
25 July 47	5.6	7	3	3	11

Mycotic Dermatoses

4 July 47	6.3	5	8	8.5	0
11 July 47	4.8	4	6	3	9
18 July 47	6.2	6	10	6	0
25 July 47	4.3	2.9	6	3	0

Venereal Disease

4 July 47	67	82	68	58	7
11 July 47	93	96	105	104	14
18 July 47	83	94	99	69	10
25 July 47	89	92	122	76	14